

Notice of Allowability

Application No.

10/706,304

Examiner

Carol S. Tsai

Applicant(s)

TESHIMA ET AL.

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2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/21/2005.
2. ☒ The allowed claim(s) is/are 7-22 and 28-31, now renumbered as 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 11/10/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 7-22 and 28-31 are allowed.
2. The following is an examiner's statement of reasons for allowance:

U. S. Patent No. 6,635,872 to Davidson in view of U. S. Patent No. 6,539,106 to Gallarda et al. and U. S. Patent No. 6,337,533 to Hanashi et al. are references closest to the claimed invention. Davidson in combination with Gallarda et al. and Hanashi et al. disclose a method of characterizing defects in wafers during fabrication in a semiconductor fabrication facility, comprising: (a) inspecting semiconductor wafers to locate defects; (b) storing locations corresponding to the located defects in a defect file; (c) automatically navigating a dual charged-particle beam system to the vicinity defect location using information from the defect file; (d) automatically identifying the defect and obtaining a charged particle beam image of the defect; (e) analyzing the charged particle beam image to characterize the defect; and (h) imaging a surface exposed by the charged particle beam cut to obtain additional information about the defect. However, Davidson in combination with Gallarda et al. and Hanashi et al. do not teach (f) determining a recipe for further analysis of the defect; and (g) automatically executing the recipe to cut a portion of the defect using a charged particle beam, the position of the cut being based upon the analysis of the charged particle beam image; and including all of the other limitations in the respective independent claims.

U. S. Patent No. 6,670,610 to Shemesh et al. is the reference closest to

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the claimed invention. Shemesh et al. disclose a system for analyzing a defect in an object, comprising: (a) an electron beam for imaging the object; (b) an ion beam for milling the object, wherein the electron and ion beams are capable of impacting at a desired location of the object; and (c) a processing device adapted to be communicatively connected to (i) the electron beam for controlling it to image a desired image portion, and (ii) the ion beam for controlling it to mill a desired milling portion. However, Shemesh et al. do not teach and (d) a computer readable media including instructions that when executed by the processing device cause it to control the system for imaging and milling, identifying a defect using information from a defect file, characterizing the defect based upon an image of the defect formed by the electron or ion beam, removing material based upon the defect characterization to expose a covered portion of the defect, and analyzing the exposed portion of the defect; and including all of the other limitations in the respective independent claims.

U. S. Patent No. 6,539,106 to Gallarda et al. is the reference closest to the claimed invention. Gallarda et al. disclose a defect analysis system for analyzing defects in a semi-conductor wafer, the system comprising: at least two charged particle beams for analyzing defects in a wafer; and at least one processing device with software components for performing analysis on defects in the wafer using the at least two charged particle beams. However, Gallarda et al. do not teach the software components causing the system to (1) automatically relocate a previously identified defect, (2) determine the size and shape of the defect, (3) adjust image magnification of the defect to an appropriate value, (4) adjust charged particle beam parameters, and (5) maintain alignment of the at least two beams as

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necessitated by changes in beam parameters; and including all of the other limitations in the respective independent claims.

U. S. Patent No. 6,539,106 to Gallarda et al. is the reference closest to the claimed invention. Gallarda et al. disclose a defect analysis system for analyzing defects in a semi-conductor wafer, the system comprising: at least two charged particle beams for analyzing defects in a wafer; and at least one processing device with software components for performing analysis on defects in the wafer using the at least two charged particle beams. However, Gallarda et al. do not teach the software components causing the system to (1) automatically relocate a previously identified defect, (2) determine the size and shape of the defect, (3) adjust image magnification of the defect to an appropriate value, (4) adjust charged particle beam parameters, and (5) maintain alignment of the at least two beams as necessitated by changes in beam parameters; and including all of the other limitations in the respective independent claims.

U. S. Patent No. 6,539,106 to Gallarda et al. in view of U. S. Patent No. 6,6709,610 to Shemesh et al. are references closest to the claimed invention. Gallarda et al. in combination with Shemesh et al. disclose a defect analysis system for analyzing defects in a semi-conductor wafer, the system comprising: at least two charged particle beams for analyzing defects in a wafer having a plurality of dies; a controllable stage for receiving and positioning said wafer relative to the at least two beams; and at least one processing device with software components to perform analysis on the wafer using the at least two charged particle devices. However, Gallarda et al. in combination with Shemesh et al. do not teach said software components providing a job builder to allow a user to define analysis jobs to automatically be

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performed on the plurality of dies and a sequencer to execute the defined job and cause the system to analyze the dies according to the defined job, said job builder allowing the user to specify a path traveled by the stage for analyzing the separate dies; and including all of the other limitations in the respective independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).

cswt
November 28, 2005



Carol S. W. Tsai
Primary Examiner
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